

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 59148405  
PUBLICATION DATE : 25-08-84

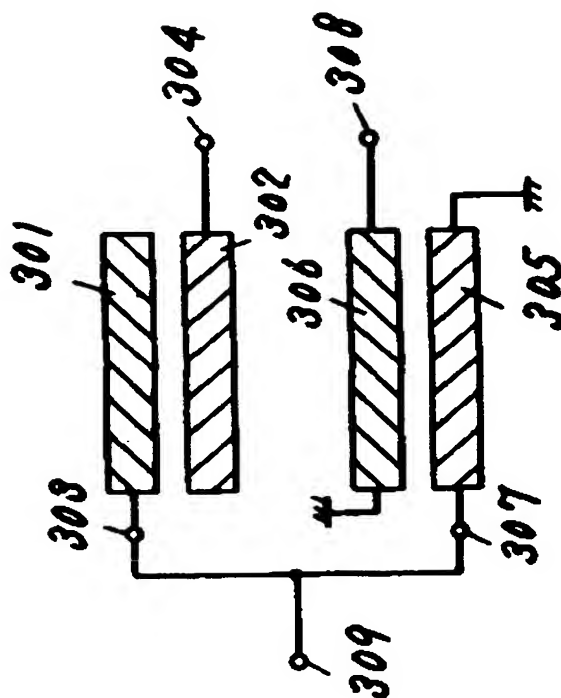
APPLICATION DATE : 14-02-83  
APPLICATION NUMBER : 58023201

APPLICANT : MATSUSHITA ELECTRIC IND CO LTD;

INVENTOR : YAMASHITA SADAHIKO;

INT.CL. : H01P 5/10

TITLE : BALANCING AND UNBALANCING  
CONVERTER



ABSTRACT : PURPOSE: To reduce stray coupling of a coupler and to attain a balun with broad band by using two  $1/4$  wavelength parallel line couplers of open end and short-circuit end.

CONSTITUTION: A signal impressed to an unbalanced input terminal 309 is transmitted to terminals 303 and 307 at the same level and phase and appears at terminals 304, 308 with the same level. Since the phase is led by  $90^\circ$  at the terminal 304 in comparison with that of the input signal and delayed by  $90^\circ$  at the terminal 308, the phase difference between the terminals 304 and 308 is  $180^\circ$  and the signal is utilized as a balanced output. Thus, since the balanced output terminal is taken from the same direction by the constitution above, the wiring of lines is minimized, the phase characteristic is improved and then the coupler is constituted by two independent coupling sections, allowing to reduce the stray coupling of the coupler and the balun with broad band is attained by using the coupler having a strong coupling degree.

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